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REMARKS

Pending Claims

Claims 1 and 28 have been amended to include the features of claim 9, and claim 9 has been cancelled by this amendment. Claims 6 and 7 have been amended to provide proper claim dependency. Claims 20, 25, and 29 have been amended to be independent claims, including the features of the base claims and any intervening claims. In addition, new claims 42-44 have been added. Support for these new claims can be found throughout the present specification. In particular, new claim 42 includes the features of claims 1 and 18. Support for new claims 43 and 44 can be found, for example, in paragraphs [0028] to [0036]. No new matter has been added. Therefore, claims 1-2, 6-7, 10, and 12-44 are pending.

Summary of the Invention

The present invention relates inkjet ink systems which comprise a) a liquid vehicle, b) a colorant, and c) a gelling agent. The gelling agent may be incorporated either into the liquid vehicle, into a second jettable composition, or onto a substrate. The gelling agent may also be attached to the colorant. In addition, several methods of generating an image are also described which utilize compositions comprising a gelling agent.

Rejection of Claims under 35 U.S.C. § 102

The Examiner has rejected claims 1-2, 6-7, 9-10, 12-19, 21-24, and 26-28 under 35 U.S.C. § 102(b) as being anticipated by Grezzo Page et al. (U.S. Patent No. 5,708,095).

In paragraph 3 of the Office Action, the Examiner states that Grezzo Page et al. discloses an ink jet ink comprising an aqueous liquid vehicle, carbon black modified with a carboxylic acid, and 0.1-30% hydrophobically modified polyelectrolyte, which the Examiner identifies as

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graft copolymer which comprises macromonomer side chains obtained from styrene and ethoxytriethyleneglycol methacrylate and a backbone obtained from (meth)acrylic acid and ethyl acrylate. The Examiner also states that the graft copolymer has a molecular weight of 1000-100,000 and that it is further disclosed that the pigment binds to the graft copolymer. The Examiner further states that a method of generating an image is also disclosed comprising incorporating the ink into an ink jet printer, jetting the ink onto a substrate, and generating an image. The Examiner concludes that, in light of the above, it is clear that Grezzo Page et al. anticipates the present claims.

In paragraph 5 of the Office Action, the Examiner states that Applicant's previous arguments regarding this reference have been fully considered but are not persuasive. The Examiner addresses various points of Applicant's arguments as follows.

a) The Examiner states that, while Applicant argued Grezzo-Page et al. does not disclose modified pigments having attached at least one organic group, this reference discloses the use of pigment modified to comprise functional groups including carboxylic acid on the surface, citing column 7, lines 1-2 and 5-7 of this reference.

b) The Examiner states that, while Applicant argued that the dispersant of Grezzo-Page et al. is not a hydrophobically modified polyelectrolyte, claims 1 and 28 only broadly require hydrophobically modified polyelectrolyte. The Examiner notes that there is no requirement of specific types of hydrophobically modified polyelectrolyte. The Examiner concludes that since Grezzo-Page et al. describes a graft copolymer comprising macromonomer side chains obtained from ethoxytriethyleneglycol methacrylate (i.e., hydrophilic monomer unit) and a backbone obtained from (meth)acrylic acid (i.e., ionic monomer unit), and ethyl acrylate (i.e., hydrophobic monomer unit), this meets the claimed requirement of a hydrophobically modified polyelectrolyte based on the definition found in the present specification.

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c) The Examiner states, while it is agreed that there is no disclosure in Grezzo-Page et al. regarding gellation of the dispersant, the present claims are directed to an ink jet ink or method of generating a printed image and not a process of gellation. The Examiner states that there is no requirement in any of the claims that gellation actually occur, only that the ink comprises a gelling agent. The Examiner concludes that, since Grezzo-Page discloses the use of a dispersant that is a hydrophobically modified polyelectrolyte gelling agent, discussed in point b) above, this reference therefore meets the requirements of the present claims.

Applicant respectfully disagrees. In particular, regarding a) above, Applicant believes that the sections of Grezzo Page et al. cited by the Examiner do not describe pigments having attached at least one organic group, as disclosed in the present invention. Instead these sections describe conventional acidic pigments. For example, column 6, line 66 to column 7, line 3 states that "all carbon blacks have chemisorbed oxygenated complexes, primarily acidic in nature" and that these include carboxylic acid groups. Column 7, lines 5-7 states that other acidic pigments may also be used. There is no disclosure in Grezzo Page et al. that a pigment having an attached organic group can or should be used.

By comparison, the present application discloses many different types of organic groups that can be attached to the pigment, including polymeric groups and organic ionic or ionizable groups (see paragraphs [0024] to [0037]). An example of organic ionizable group is an anionizable group such as a carboxylic acid group (see paragraph [0026]). Thus, the organic group may be an organic ionizable group comprising a carboxylic acid group, and is therefore not the acid groups that are shown in Grezzo Page et al. In fact, the pigments of Grezzo-Page et al. may be used to prepare the modified pigments used in the present invention. For example, paragraph [0020] of the present specification describes various base carbon black pigments to which an organic group can be attached, some of which are known to be oxidized carbon blacks having the acidic groups described in Grezzo-Page et al. Therefore, Applicant believes Grezzo-

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Page et al. does not disclose a modified pigment comprising a pigment having attached at least one organic group, as disclosed in the present invention.

In order to more clearly define Applicant's invention, claims 1 and 28 have been amended to recite that the modified pigment comprises a pigment having attached at least one organic group, wherein the organic group comprises at least one ionic group, ionizable group, or mixtures thereof. Since Grezzo-Page et al. does not describe a modified pigment having attached at least one organic group, as in the present invention, this reference also does not disclose the modified pigments of claims 1 or 28. These modified pigments are not the pigments described in Grezzo-Page et al.

Regarding b) and c) above, while Applicant respectfully disagrees with the Examiner's interpretation of the graft copolymer of Grezzo-Page et al., Applicant believes that, as amended and discussed in more detail above, claims 1 and 28 are not anticipated by this reference.

Therefore, Applicant believes that claims 1 and 28 are not anticipated by Grezzo-Page et al. Claims 2, 6-7, 10, 12-19, 21-24, and 27, which depend either directly or indirectly from either claims 1 or 28, disclose further embodiments of the present invention and, for at least the reasons discussed above, are also not anticipated by Grezzo Page et al.

Regarding claim 26, this claim depends from claim 1 and for at least the reasons discussed above is not anticipated by Grezzo-Page et al. In addition, claim 26 recites that the gelling agent is incorporated onto a substrate. There is no disclosure anywhere in Grezzo-Page et al. that the graft copolymer is incorporated onto a substrate. Instead, the copolymer is only present as a dispersant in the ink composition. Therefore, Applicant believes that claim 26 is not anticipated by this reference.

Regarding claim 9, this claim has been cancelled, making this rejection moot.

Applicant therefore believes that claims 1-2, 6-7, 9-10, 12-19, 21-24, and 26-28 are not anticipated by Grezzo Page et al. and respectfully request that this rejection be withdrawn.

Regarding new claims 42-44, claim 42 recites an inkjet ink system comprising a liquid vehicle, a colorant, and a specific type of gelling agent. There is no disclosure anywhere in Grezzo-Page et al. of this specific gelling agent of claim 42. Furthermore, new claims 43-44

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recite an inkjet ink system and method of generating an image which uses a modified pigment comprising a pigment having attached at least one organic group having the formula -X-Sp-[Polymer]R. There is no disclosure anywhere in Grezzo-Page et al. of this type of pigment. Therefore, Applicant believes that new claims 42-44 are not anticipated by this reference.

Allowable Subject Matter

In paragraph 6 of the Office Action, the Examiner states that claims 38-41 are allowable. Furthermore, in paragraph 7 of the Office Action, the Examiner has objected to claims 20, 25, and 29-37 as being dependent upon a rejected base claim but further states that these would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant is grateful for the allowable subject matter of claims 38-41. In addition, claims 20, 25, and 29 have been rewritten in independent form and include the features of the respective base claim and any intervening claims. Therefore, Applicant believes that claims 20, 25, and 29-37 are also in condition for allowance.


Furthermore, in view of the comments provided herein, Applicant also believes that claims 1-2, 6-7, 10, 12-19, 21-24, 26-28, and 42-44 should also be found allowable.

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Conclusion

In view of the foregoing, Applicant believes that this application is considered to be in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would further expedite the prosecution of the subject application, the Examiner is invited to call the undersigned.

Respectfully submitted,

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